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Design of Field Rental System on Web-Based Garuda Mataram Badminton Club

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ABSTRACT

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Residents of West Nusa Tenggara, Mataram City, mostly like badminton. GOR Badminton Garuda is a sports building that provides sports field rental services specifically for badminton (badminton) in the city of Mataram. Rental management at the Garuda Badminton Building is still carried out conventionally, namely by manually recording the list of field tenants in the rental book, resulting in difficult data searches and frequent schedule recording errors. In addition, making reports takes a long time because they are still made from rental books. In terms of field reservation, it is also considered less effective because tenants have to come to the field. The solution provided is to create a web-based online field rental information system using the Waterfall method. The results of creating this information system can make it easier for admins to manage rentals and make it easier for the public to get information and field booking services online. Based on Usability testing using the ISO 9126 model, the Field Rental Information System at the Garuda Badminton Sports Hall is in good criteria with a percentage of 83%.

Keywords: *information system, badminton, web*

1. INTRODUCTION

Development Knowledge Very fast knowledge and technology various field push man for to do all Thing by fast and accurate, especially with existence computer where information could with easy obtained. System information is part big from system, which is bunch procedure each other related and connected consisting of on three component main software, hardware, and brainware. Component this have characteristic characteristics liaison system, input, output, processing and target [1]. So in Thing this technology and systems based information _ computer is very necessary in processing information for ensure quality information and data accuracy to be served .

Garuda Badminton GOR is one of the building sports that provide service rental field sport special hair badminton (badminton) in Mataram City . Garuda Badminton GOR at the moment this rent three field for members and regulars who receive hourly rental .

Management The rental at the Garuda Badminton GOR is still conducted by conventional that is with record the list of tenants field both members and regular in book rental manually, so that result in hard data search done and often happening error recording timetable because information about usage field not enough accurate. Besides that, manufacture related reports _ with activity rental field need a long time and yet maximum because still made from book rental. In Thing booking or cancellation rent field is also assessed not enough effective because tenant field must more formerly come to the location of the Garuda Badminton GOR and inquire available schedule. _ If the customer wants To do rental and want playing in the field the will but field the has filled by other people, customers are welcome for look for another field or replace timetable booking . Tenants are also having a hard time in get information like timetable match , price rent and so on .

because of that destination from study this is designing a system information web - based that can make it easy rental field online and possible customer could look for information timetable still field _ available with method visit the website of GOR Badminton Garuda which can be accessed where and when just so _ customer no need come direct to the place tenant . Besides that with existence

computerized system _ online will _ help data processing and creation report rental more field _ effective and efficient .

2. METHODOS

2.1. Method Data Collection

Data collection at GOR Garuda Mataram conducted for know the business processes that exist in GOR Garuda Mataram . At stage this Information could obtained through observation , discussion or Interview straight away . Information analyzed for get the data needed by the user .

a. Observation

Observation carried out at GOR Garuda for get the desired data with To do observation to system rental field hair badminton .

b. Interview

To do Interview with GOR officer or considered object _ have a valid information for get information related researched thing . _

c. Documentation

To do documentation of the required data from GOR Badminton Garuda such as price data rent hourly field and related data with topics research .

d. Studies Literature

Study this Library conducted with look for supporting material _ in study as well as collect and study various type article from various media from related books and internet with object problem .

2.2. Method Development System

Method development the system used in the design The web-based food rental information system at GOR Garuda Mataram is method *waterfalls* . Method *waterfall* is a development model system systematic and sequential information [2] . Method *waterfall* have stages that is analysis , design , design , coding (*coding*), and testing (*testing*).
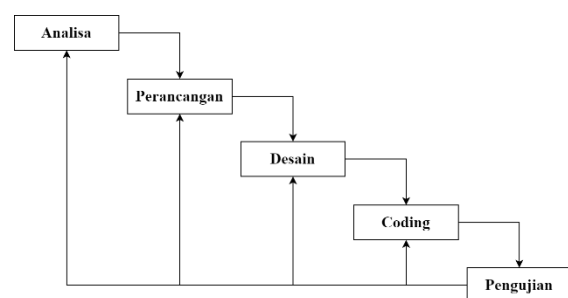

Figure 1. Method waterfall

1. Analysis

At stage development system this required purposeful analysis _ for understand device software user expectations and limitations _ _ device soft that .
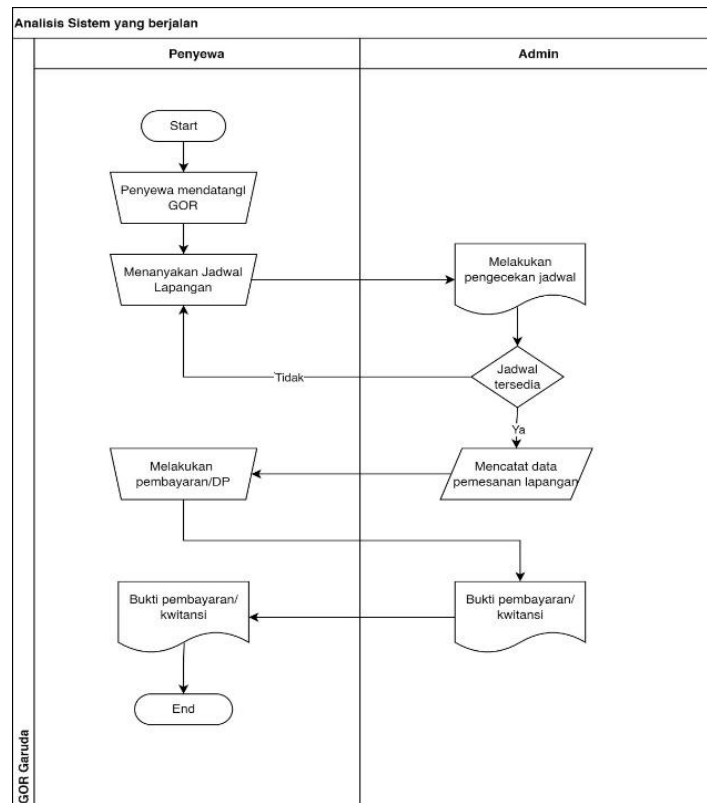

Figure 2. Analysis of the running system

2. design

In stages this will explain about modeling of _ device soft . Meaning making this model is for get good understanding _ to data flow and control, functional processes , behavior in demand operations and the information contained therein [3] .

a. Context Diagram

Context diagram is a diagram that represents or describe system that will built by the author by whole . Context diagram seen in the picture under this .
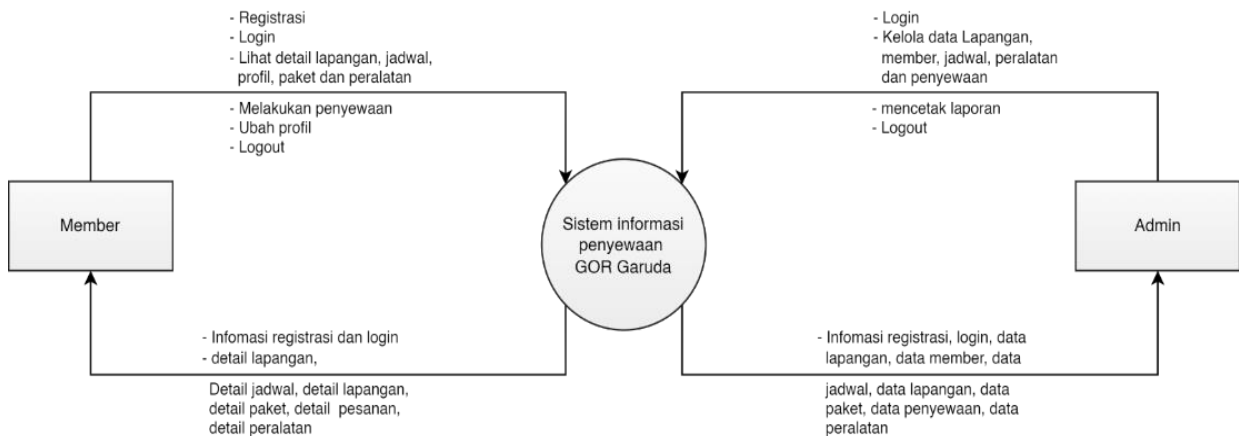

Figure 3. Context diagram

b. *Entity Relationship Diagram (ERD)*
    design *Entity Relationship Diagram (ERD)* that has been created on the system booking this showing scheme connection between table in databases. As for the sketch System Booking The field at GOR Garuda , as following
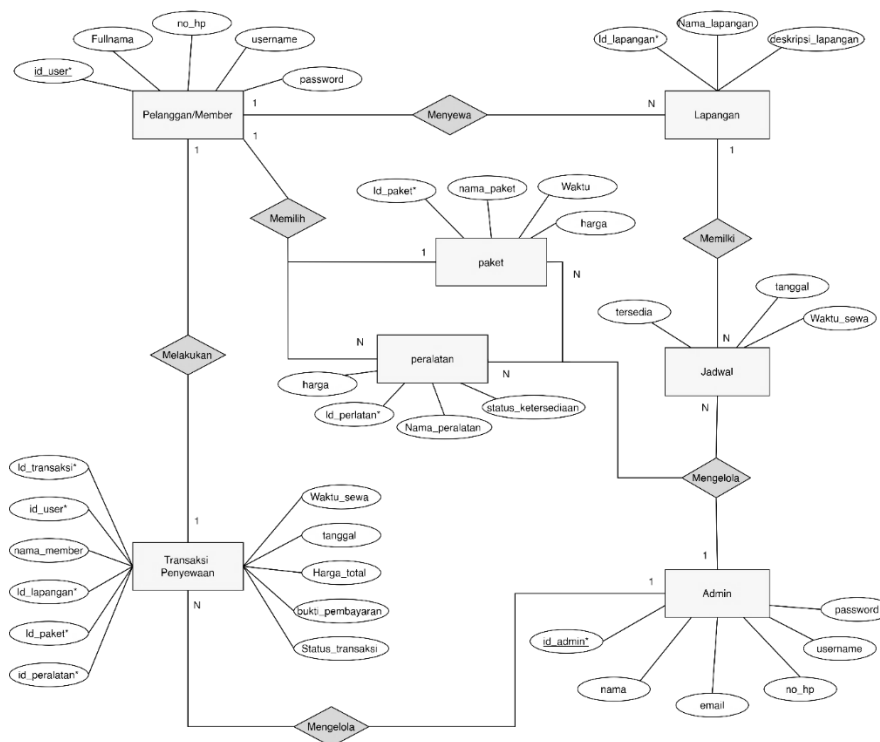

Figure 4. design Entity Relationship Diagram

c. design Database Structure
    on tham this conducted database design in the form of representation from structure of records in future tables will used in making system information rental the field at GOR Garuda, as for design the file is as following :

Figure 5. Database design

d. design user table

Database Name : gor_garuda_db
Table Name   : user
Primary Key   : id_user

Table 1. design user table

Field Name	Type	Size
name_member	varchar	20
id_user	int	25
name	varchar	50
e-mail	varchar	50
phone number	varchar	30
address	varchar	100
username	varchar	50
password	varchar	50
profile picture	varchar	50
is_member	boolean	5

e.   design table rental
Table Name   : transaction_rent
Primary Key   : id_transaksi

Table 2. design table rental

Field Name	Type	Size
id_transaction	int	25
user_id	int	50
id_field	int	50
id_package	int	20
id_equipment	int	20
name_member	varchar	50
Phone number	varchar	20
date	date	30
time_rent	time	20
package	Varchar	20
price	int	50
proof of payment	varchar	20
stats_payments	varchar	20

3. Design
      On Stage this will attached design detail from design system information booking field at GOR Garuda. design this working as design the view that will be used .
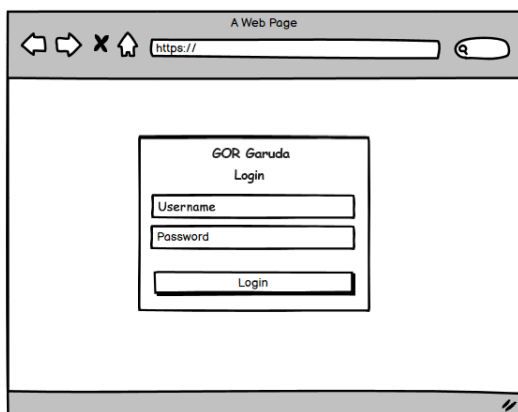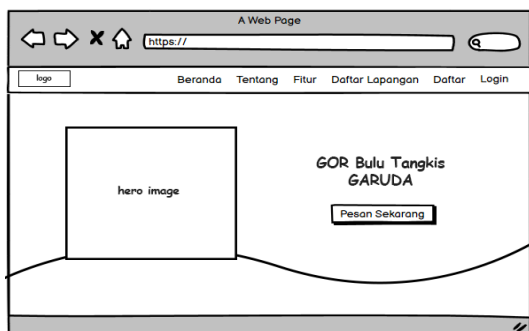
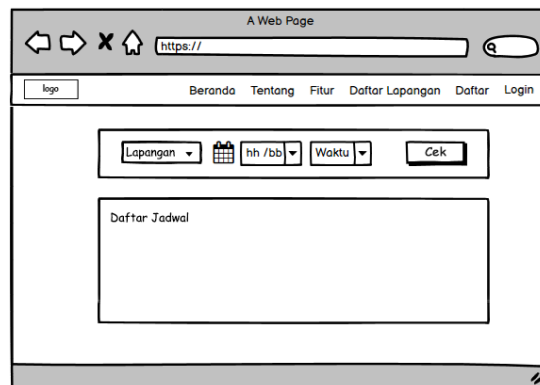
Figure 6. Login page layout

Figure 7. Home page layout

Figure 8. Page layout check timetable

4. Coding (*Coding*)
      In stages this conducted coding system with use *framework Laravel* with language base programming *PHP (Hypertext Pre-processor)* and *Visual Studio Code* as device soft or text editors. Coding application conducted in accordance with Result of analysis and design made into the form language programming that can understood by the system .

5. Testing (*Testing*)
      In stages this conducted testing system . Test this conducted for see is system that has made already in accordance with hope user application or not yet . Testing method used that is *usability* and *black-box* testing. Usability testing refers to the extent to which the user can learn and use something product for reach objectives and the extent to which user satisfaction in use product it [10]. one _ method for To do *usability testing* is with To do questionnaire . As for the plan questions on the questionnaire is as following :

Table 3. design questionnaire

Factor Indicator Criteria	No	Question	STS	TS	N	S	SS
			1	2	3	4	5
Understandability	1	Not needed long time for understand method work system .					
	2	resulting output system could understood with easy					
Learnability	3	Not needed *training* special for learn method work system .					
	4	System provide clear instructions and instructions _ in its use .					
Operability	5	Admin can use system with easy .					
	6	System make it easier for admins to get order data report .					
Attractiveness	7	System have attractive appearance . _					
	8	Admin feel comfortable with appearance system .					

Information   Mataram, August 2022
SS   Strongly Agree
S   Agree
N   Neutral
TS   Not Agree
STS   Very No Agree   (   )

3.   RESULTS AND DISCUSSION

3.1.   Homepage
1. Home page
        On page this customer or members can to log in, to get information more complete and do booking field at GOR Garuda.

Figure 9. Home page

2. Login page
        On page this customer or members can to log in, to get information more complete and do booking field at GOR Garuda.
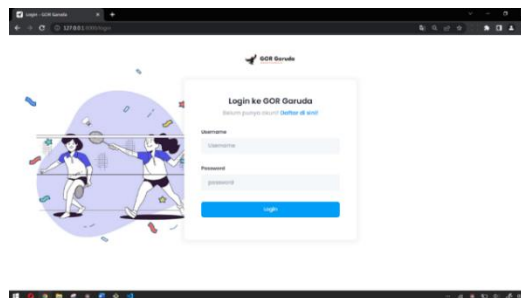

Figure 10. Login page

3.2.   Dashboard Page
1. Dashboard start page
        dashboard   start   page   is   the   page containing the main menu is displayed after do login
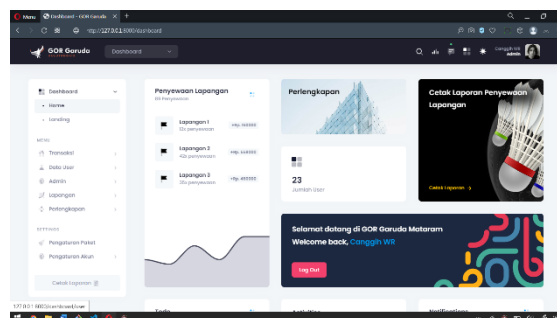

Figure 11. Dashboard start page

2. Schedule page

Schedule page is page containing _ information about timetable rental field and on page this member can also To do selection and checking timetable
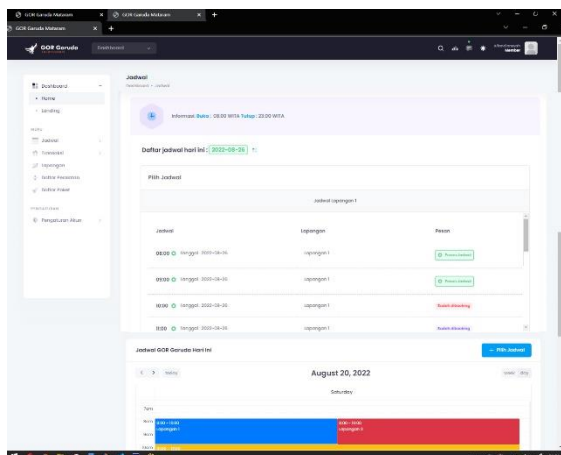

Figure 12. Schedule page

3. Rental page

Rental page is page where the user inputs the rental data. On page this there is a selection form field, package, as well as date and time rental. Users can also add equipment if want to To do purchase equipment hair badminton.
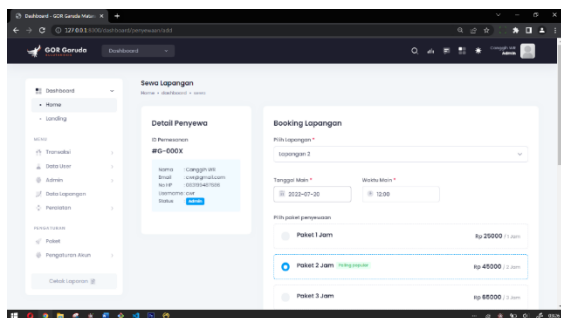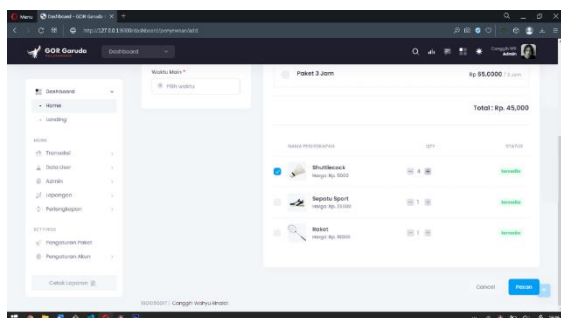

Figure 13. Rental data input form

Figure 14. Choice form equipment

4. Payment page

Payment page is page for the user to choose method and type desired payment . _ After To do user payment send proof payment for next confirmed admin.

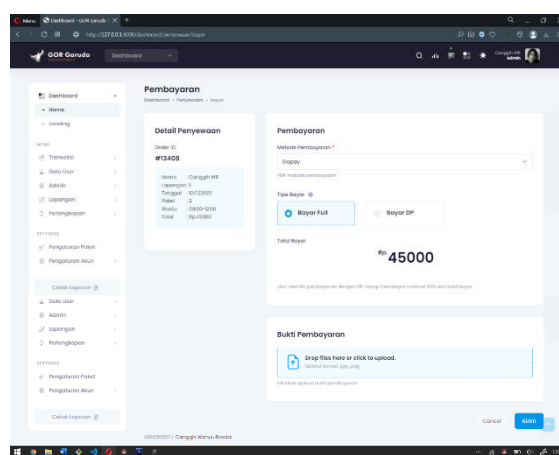*Figure 15. Payment Page*

5. Member list page

The member list page is page for admin can see user or member gor data, and detail *buttons* for see user details.
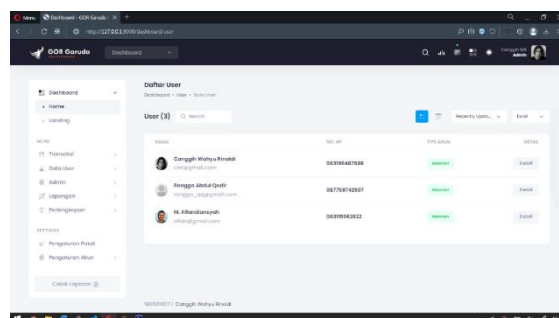

Figure 16. Member list page

6. Package list page

Package list page is page for admin to manage package data existing price _ along with the price offered . Admin can To do add , remove and edit packages .
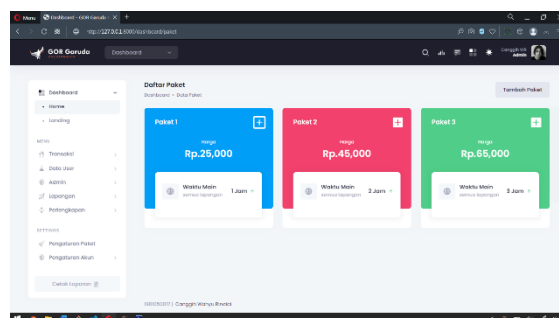

Figure 17. Package list page

7. Equipment list page

Equipment list page is page for admin managing equipment data hair existing badminton _ along with the price offered . Admin can To do add , remove and edit tools
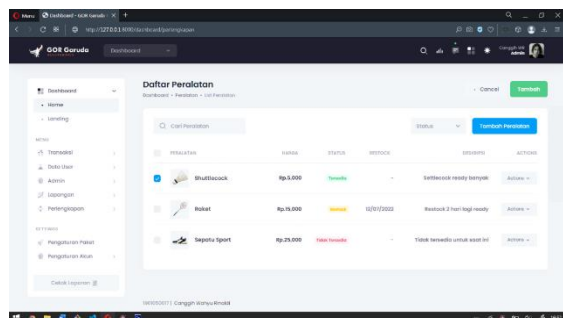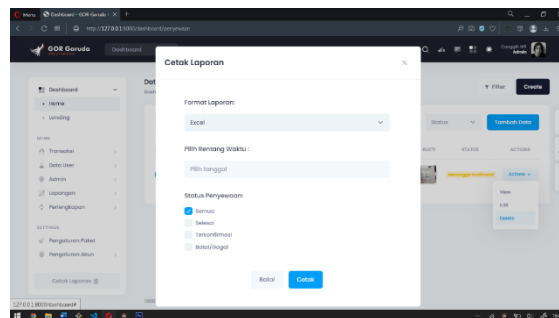

Figure 18. Equipment list page

8. Report page rental

rental report page is a page that contains *user order data* that has been completed and can be printed in the form *of a pdf file* and can be *exported* to *excel* to be used as a report .
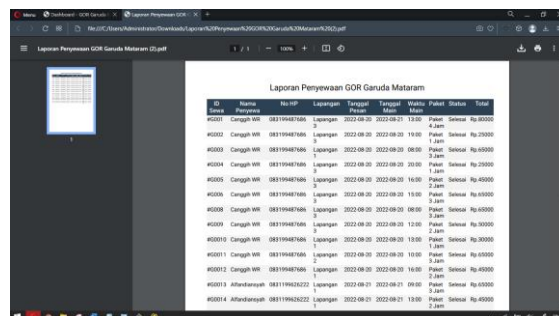

Figure 19. Print page report

Figure 20. Printout _ report

3.3. Test results System
1. *black box testing*

black box testing is focused testing _ to specification functions from system built [11].

Following this is results testing *black-box testing* on the system rental field hair badminton at GOR Garuda Mataram

Table 4. Black-box testing

No.	Test Class	Scenario Test	Expected results	Test Results
1	*Login*	Fill in the username and password with Correct	Sign in to page main	In accordance
2	*Login*	Fill in username and password incorrectly	Showing wrong username or password message !	In accordance
3	*Register*	Fill in all column with Correct	Showing message registrar Succeed	In accordance
4	*Register*	Not fill in one column	Showing message column the no can empty	In accordance
5	rental Field	Filling Data with correct and schedule not yet filled	rental Succeed	In accordance
6	rental Field	rental form no filled	Showing message data yet filled	In accordance
7	Send Proof of Payment	Fill out the form with the data already there is	Showing message timetable already ordered	In accordance
8	Send Proof of Payment	Choose photo proof payment	Payment proof successfully uploaded	In accordance
9	Viewing Info View Payment Proof	Not choose photo proof payment	Showing message Please choose proof payment !	In accordance
10	Verification	Pressing the Info menu	Showing information	In accordance
11	Payment	Click knob Look proof payment	Showing photo proof payment	In accordance

Table 4 continued…

No.	Test Class	Scenario Test	Expected results	Test Results
12	Complete rental Field Edit	Click knob Verification then select OK	Showing Order Proof of Payment Succeed verified Showing message rental	In accordance
13	Plus	Click knob done then select OK	Success! Data successful updated to database	In accordance
14	Equipment Edit Tools	Editing field data	Addition Equipment	In accordance
15	Wipe	Filling equipment data	Succeed Data successful updated to database	In accordance
16	Equipment	Editing equipment data	Deleted data from database	In accordance
17	Add Admin	Deleting equipment data	Showing message Adding	In accordance
18	Add Admin	Fill in admin data	Admin Successful Showing message Failed,	In accordance
19	Edit Admin	Fill in the existing username field once	Username already there! Data successful updated to	In accordance
20	Delete Admin See report	registered Editing Admin data	database Deleted data from database	In accordance
21	rental	Delete Admin data	Show rental data	In accordance
21	Export to *Excel*	Click the Report menu	Export rental data into	In accordance
22	Export to *PDF*	rental Click knob *Excel*	*Excel* format Export rental data into *PDF*	In accordance
23	*logout*	Click knob *PDF*	format Showing page *login*	In accordance
24		Push knob *logout*		In accordance

2. *Usability testing*

On *usability testing* testing conducted with user end from system. Test this conducted with method the questionnaire given to 5 people, including 4 users and 1 manager at GOR Bulu Garuda fight. Test this conducted for see is system that has made already in accordance with hope user application or not yet. Evaluation response from respondent this using the ISO 9126 model. The results response evaluation from respondent among others as following:

Table 5. Questionnaire Results

No	Respondent	Age	Type Sex	Answer Results Respondent								Actual Score
				P1	P2	P3	P4	P5	P6	P7	P8	
1	Imam Firmansyah	23	Man	4	3	5	4	5	4	4	4	33
2	M Alfandiansyah	21	Man	3	4	5	3	5	3	5	4	32
3	Rangga Abdul	22	Man	4	5	5	4	4	4	5	5	36
4	Qadir	20	Man	4	4	4	3	5	4	3	4	31
5	Yusril Mahendra Irfan Angkasa	21	Man	4	4	4	4	4	5	5	4	34
	Actual Score			19	20	23	18	23	20	22	21	**166**
	Ideal Score			25	25	25	25	25	25	25	25	**200**

Final Score = (166/200) x 100%
Final Score = 83%

Based on results score end, can concluded that System Usability level
rental Field hair badminton at GOR Garuda in criteria Well with percentage by 83%

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CONCLUSION

Based on description results analysis and design System rental The field at the Garuda Badminton GOR which has been discussed in chapters before, then could taken conclusion that:

System information rental the field at the Garuda Badminton GOR was successful built use *Laravel framework* and developed with method development system *waterfalls*. With existence system rental field the field at the Garuda Badminton GOR, making it easier user for see availability and schedule field as well as could order online. With existence application this could make it easy GOR Garuda manager in manage rental data, field data, schedule data, user data, package data, and equipment data. Application this can also give rental data report field in Excel and PDF formats so that simplify the recording process report rental.

Based on results testing use *black box testing*, System information rental designed field _ get appropriate results, good _ both process and functional. Whereas based on results testing with ISO 9126 models through results distributed questionnaire _ to respondent , level *usability* System rental the field at the Garuda Badminton GOR in
" good " criteria with percentage by 83%. So that could concluded that System built rental _ worthy used.

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